

removing a first portion of said titanium nitride film by a first removal step using an ammonia-hydrogen peroxide-water mixture such that a second portion of said titanium nitride film remains; and

removing said second portion of said titanium nitride film by a second removal step using a hydrogen peroxide-water mixture.

12. (Amended) A method of producing semiconductor devices, comprising:

forming cobalt film on the top surface of a silicon substrate, which has a gate electrode and a diffusion film;

forming titanium nitride film as the cap film on the top surface of said cobalt film;

selectively reacting the silicon of said silicon substrate and the cobalt of said cobalt film;

removing a first portion of said titanium nitride film by a first removal step using an ammonia-hydrogen-peroxide-water mixture such that a second portion of said titanium nitride film remains; and

removing said second portion of said titanium nitride film by a second removal step using a hydrogen peroxide-water mixture.

13. (Amended) A method of producing semiconductor devices by cobalt salicide technology with titanium film as the cap film, comprising:

removing a first portion of said titanium film by a first removal step using an ammonia-hydrogen peroxide-water mixture such that a second portion of said titanium nitride film remains; and

removing said second portion of said titanium film by a second removal step using a hydrogen peroxide-water mixture.

16. (Amended) A method of producing semiconductor devices, comprising:

forming cobalt film on the top surface of a silicon substrate, which has a gate electrode and a diffusion layer;

forming titanium film as the cap film on the top surface of said cobalt film;

selectively reacting the silicon of said silicon substrate and the cobalt of said cobalt film;

removing a first portion of said titanium film by a first removal step using an ammonia-hydrogen peroxide-water-mixture such that a second portion of said titanium film remains; and

removing said second portion of said titanium film by a second removal step using a hydrogen peroxide-water mixture.